



# **Canadian Geographical Names, Level 1 Product Specifications**

**Edition 1.1**

**2005-12-14**

**Natural Resources Canada  
Geomatics Canada  
Centre for Topographic Information  
Geographical Names Section  
615 Booth Street, Room 634  
Ottawa, Ontario, Canada  
K1A 0E9**

Telephone: +01-613-943-0234  
Fax: +01-613-943-8282  
E-mail: [geonames@nrcan.gc.ca](mailto:geonames@nrcan.gc.ca)  
URL: <http://cgns.nrcan.gc.ca>

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GeoBase®

**REVISION HISTORY**

| <b>Date</b>     | <b>Version</b> | <b>Description</b>               |
|-----------------|----------------|----------------------------------|
| January - 2003  | 1.0            | Original version                 |
| August - 2005   | 1.0.1          | Minor corrections                |
| November - 2005 | 1.0.2          | Minor corrections                |
| December - 2005 | 1.1            | Addition of Feature ID attribute |

**FUTURE WORK**

| <b>Key word</b> | <b>Description</b> |
|-----------------|--------------------|
|                 |                    |

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## **ACRONYMS AND ABBREVIATIONS**

|       |  |
|-------|--|
| CGN1  | Canadian Geographical Names, Level 1   |
| CGNDB | Canadian Geographical Names Data Base  |
| CGNS  | Canadian Geographic Names Service      |
| GNBC  | Geographical Names Board of Canada     |
| NAD27 | North American Datum 1927              |
| NAD83 | North American Datum 1983              |
| NTS   | National Topographic Series            |
| RDBMS | Relational Data Base Management System |

## **TERMS AND DEFINITIONS**

## 1 Overview

The Canadian Geographical Names Data Base (CGNDB) is the data bank of Canada's geographical names, maintained by the Geographical Names Section, part of the Centre for Topographic Information, Geomatics Canada, Natural Resources Canada. Its purpose is to store names and their attributes that have been approved by the Geographical Names Board of Canada (GNBC) and to make these authoritative records available for government and public use.

The subset of the CGNDB data which is served up in the GeoBase Portal for data extraction and visualization consists of current officially approved names, and is referred to as the Canadian Geographical Names, Level 1 (CGN1) dataset. Additional attributes for this dataset as well as information on formerly approved names are available through the [Canadian Geographical Names Service](#) (CGNS).

The geographic extent of this data is the Canadian landmass and water bodies.

The temporal extent of the data is from 1897 to present.

The purpose of the CGN1 data set is to provide official names for mapping and charting, gazetteer production, and World Wide Web reference, and other geo-referenced digital systems.

The data structure is a relational model and stored in a Relational Data Base on Oracle.

Data format for each entry record consists of nine variable length fields. The available output file format for the product are: GML (Geography Markup Language) in ASCII and SHAPE (ESRI™).

Delivery media is through a Web browser on the Internet.

## 2 Data Identification

### 2.1 Spatial resolution (“scale”)

For visualization, the spatial resolution will correspond to specific National Atlas scale mapping representing the level of detail expressed as the scale of a comparable hardcopy map.

For the data extraction the spatial resolution corresponds to the scales of 1:50 000 and 1:250 000, representing the level of detail expressed as the scale of a comparable hardcopy map.

### 2.2 Language

English (eng) and French (fre) are the languages used for the dataset.

### 2.3 Character set

The character coding standard used for the data is ASCII 8859 8 bit character set. Specially encoded names/symbols are used for “hard to construct” characters from Aboriginal languages, for which no international standard yet exists.

### 2.4 Topic category

The main themes of the data are: names, geography, toponymy and location.

According to the GCMD<sup>1</sup> (Global Change Master Directory) thesauri, CGN1 can be classified into Science keywords structured using a 4 levels hierarchy: category > topic > term > variable. The following list indicates which one have been retained for Canadian Geographical Names, Level 1.

#### **CATEGORY > TOPIC > TERM > VARIABLE**

- EARTH SCIENCE > HUMAN DIMENSIONS > BOUNDARIES > POLITICAL DIVISIONS
- EARTH SCIENCE > HUMAN DIMENSIONS > BOUNDARIES > ADMINISTRATIVE DIVISIONS

### **2.5 Geographic box**

The minimum bounding rectangle (MBR) within which data is available:

- West Bounding Coordinate: 142.000° West (or -142.000°)
- East Bounding Coordinate: 50.500° West (or -50.500°)
- North Bounding Coordinate: 83.500° North (or 83.500°)
- South Bounding Coordinate: 41.683° North (or 41.683°)

### **2.6 Geographic description**

The geographic area within which the data is available is the Canadian land mass and water bodies.

### **2.7 Extent**

The temporal extent for the content of the data is from 1897 to present.

## **3 Geospatial Characteristics**

### **3.1 Spatial representation type**

Vector data: specifically, point data (currently the latitude and longitude are in degrees, minutes or degrees, minutes and seconds) is used to spatially represent geographic information. Values are viewed and output in decimal degrees.

### **3.2 Spatial representation**

A floating point representing the approximate location of the associated feature.

### **3.3 Coverage and continuity**

Data is subdivided by province or territory. There is continuity within province or territory. There is no overlap in points, but overlap exists in records for features which cross provincial boundaries.

### **3.4 Data segmentation**

NOT APPLICABLE

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<sup>1</sup> Information on NASA Global Change Master Directory (GCMD) can be found at: <http://gcmd.nasa.gov>.

## 4 Data Model

### 4.1 Data modelling schema used

The data-modelling schema used is Entity Relationship Model (ERM).

### 4.2 Application schema (Conceptual Model)

The Canadian Geographical Names, Level 1 (CGN1) data set is represented in GeoBase as point data which is used to spatially represent the geographic location of the feature associated with the place name feature. Each CGN1 record is unique and contains attributes related to the place name. The following list depicts the fields of the CGN1 data record that are currently available in GeoBase.

| PLACE NAME FEATURE |
|--------------------|
| GEONAME            |
| <b>CGNDB_KEY</b>   |
| GENERIC_TERM       |
| CONCISE_TERM       |
| LATITUDE           |
| LONGITUDE          |
| DATUM              |
| NTS_MAP            |
| REGION_NAME        |
| FEATURE_ID         |

## 5 Data Dictionary / Feature Catalogue

The CGN1 data set's records currently contain the attributes listed below for viewing on GeoBase. They are a subset of the data in the *Canadian Geographical Names Data Base (CGNDB)*. The *Canadian Geographical Names Service (CGNS) Data Model and Data Dictionary* reference document<sup>2</sup> presents the data-modelling schema for the CGNS in the form of an Entity-Relationship diagram and the data dictionary in the form of a listing of tables.

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<sup>2</sup> This document can be found at <http://www.geobase.ca> - in the Data section.

| ATTRIBUTE NAME | CORRESPONDING CGNS DB TABLE-COLUMN- DATA TYPE | DATA TYPE (OUTPUT FORMAT)        | DESCRIPTION   |
|----------------|---|----------------------------------|---|
| GEONAME        | GEONAMES - GEONAME - VARCHAR2(100)            | STRING                           | The Feature Name is an alpha-numeric field that shows the actual geographical feature name or the place name.   |
| CGNDB_KEY      | GEONAMES - CGNDB_KEY - VARCHAR2(10)           | STRING                           | The CGNDB Key is a five digit alphabetical sequence code assigned to each record in the CGNDB. As a new record is entered in the database, a unique CGNDB Key is automatically assigned to the new entry. The first letter of the CGNDB Key indicates the region in which the feature is located.   |
| GENERIC_TERM   | GENERIC CODE - GENERIC_TERM - VARCHAR2(240)   | STRING                           | The Generic Term is used to describe the generic for a feature or place. Domain values are identified in Appendix B – List of Generic Codes and Terms, <i>CGNS Data Model and Data Dictionary</i> .   |
| CONCISE_TERM   | CONCISE CODE - CONCISE_TERM - VARCHAR2(240)   | STRING                           | The Concise Term is used to group generics, according to the type of feature. Domain values are identified in Appendix A – List of Concise Codes and Terms, <i>CGNS Data Model and Data Dictionary</i> .  |
| LATITUDE       | GEONAMES - LATITUDE - NUMBER(10,4)            | STRING<br>(99° 99' 99.99" North) | The Latitude of the feature. It is provided as degrees, minutes, and seconds.   |
| LONGITUDE      | GEONAMES - LONGITUDE - NUMBER(10,4)           | STRING<br>(999° 99' 99.99" West) | The Longitude of the feature. It is provided as degrees, minutes, and seconds.  |
| DATUM          | GEONAMES - DATUM - VARCHAR2(20)               | STRING                           | The horizontal reference system code for attribute data (Latitude, Longitude). Possible code values are: NAD27 (North American Datum 1927) or NAD83 (North American Datum 1983).  |
| NTS_MAP        | GEONAMES - NTS_MAP - VARCHAR2(4000)           | STRING                           | The number(s) of the NTS map sheet(s) on which the feature or place can be found.   |
| REGION_NAME    | REGION - REGION_NAME - VARCHAR2(240)          | STRING                           | The Region Name is used to identify the province or territory within which the feature or place is located. A record may not have more than one Region Name. If a feature lies on or crosses a provincial or territorial boundary, it is therefore in more than one region. The feature must be approved by all jurisdictions involved and it will have a separate record, and a different Region Name for the part of the feature within each province or territory. Domain values are identified in Appendix C – List of Region Codes and Names, <i>CGNS Data Model and Data Dictionary</i> . |
| FEATURE_ID     | GEONAMES - FEATURE_ID - VARCHAR2(40)          | STRING                           | The unique identifier of the feature.   |

## **6 Coordinate Reference System**

### **6.1 Horizontal reference system**

The horizontal reference system for spatial data is NAD83 (North American Datum 1983).

#### **6.1.1 Horizontal coordinate system**

Data are stored in latitude ( $\Phi$ ) and longitude ( $\lambda$ ) geographic coordinates.

#### **6.1.2 Unit of measure (coordinate system axis units)**

Unit of measure for horizontal coordinates system is degrees, minutes (required) and seconds (optional).

Values are viewed and output in decimal degrees.

### **6.2 Vertical reference system**

NOT APPLICABLE

## 7 Data Quality

### 7.1 Scope

Data is provided by approximately twenty GNBC members, including provinces and territories. Quality checks during data processing and data entry ensure validity of the name. Coordinate and other related attributes have varying accuracy depending on the source.

### 7.2 Lineage

The forerunner of the CGNDB (the National Toponymic Data Base) was developed in 1978 as a replacement for a growing card-index registry, which had been maintained since the creation of the original Geographic Board of Canada in 1897. It was designed to increase the efficiency of gazetteer production and National Topographic System (NTS) names compilations. In 1987, and again in 1999, the digital data base was remodeled into its current relational data base form. Today, the CGNDB is managed with ORACLE Relational Database Management System (RDBMS) using the operating system SOLARIS. The use of character set ISO ASCII 8859 ensures the inclusion of accented characters used in Canada's French-language geographical names. Diacritics and syllabics found in some Canadian Aboriginal language names, and which are presently beyond the scope of most computer systems, are represented in the CGNDB by numerical substitutions. When international standards are accepted and implemented, the CGNDB records will be modified accordingly.

Until 1961, naming decisions were made by the federal government, with the advice and assistance of the provinces and territories. At that time, the provinces assumed responsibility for naming, except where federal lands, such as Indian reserves or national parks, are concerned. In 1984, Yukon Territory and the Northwest Territories assumed responsibility for the names in their own jurisdictions. This responsibility was extended to Nunavut when the new territory was created in 1999.

Each province or territory processes proposals for new names and name changes within their jurisdictions, in accordance with the *Principles and Procedures for Geographical Naming*, published by the GNBC. In addition, they may also undertake field work or research to gather or verify general geographical names information.

Details of the decisions to adopt, change, or reject geographical names are sent to the GNBC Secretariat to maintain the national registry. All such names records are entered into the CGNDB, and the office copies of the NTS maps are amended to reflect these name decisions.

Updates to geographical names information are provided in different ways by different jurisdictions. Some provinces provide paper listings of name decisions, others provide digital files, or a combination of the two. Procedures have been established to deal with each in an appropriate way to ensure timely and accurate updating of the CGNDB.

### 7.3 Completeness

The subset of the CGNDB to be provided to GeoBase is approximately two-thirds of the records. The fields provided for each record will be approximately half of the fields available in the CGNDB.

### 7.4 Logical consistency

Logical consistency for each record in the CGNDB is dependant on the data providers and in-house requirements. Data provided through GeoBase has a higher degree of consistency because of the limited fields provided.

### **7.5 Positional accuracy**

Accuracy varies depending on the source of the data, date collected and extent of the feature that the toponymy relates to.

### **7.6 Temporal accuracy**

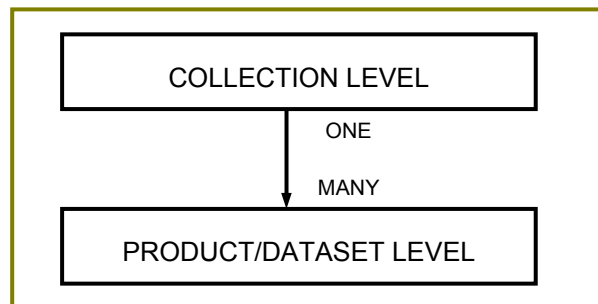
The records in the CGNDB contain dates for decisions approving official names, dates when provincial/territorial names Boards met to approve the name, and system-generated creation and update dates. Quality checks during data processing and data entry ensure validity of the approval and meeting dates. Creation and update dates are generated automatically when a new record or update is committed to the data base.

### **7.7 Thematic (attributes) accuracy**

As reported by GNBC members and validated by Geographical Names Section of NRCan.

## 8 Metadata

There are usually 2 levels of metadata to describe a product as shown in following figure: collection and product/dataset. The higher level of metadata covers the entire data collection: it applies to the series of available datasets (group of features), database, etc. The other level is called product level metadata and it gives specific information about each dataset.



**Figure 1: Metadata Levels**

For the Canadian Geographical Names, Level 1 metadata exists only for the entire collection. There is no product level metadata because the entire CGNS records are part of a unique source database. CGN1 metadata are available via GeoBase Portal (in the Data section at <http://www.geobase.ca>) and GeoConnections Discovery Portal (in the Data section at <http://geodiscover.cgdi.ca>).

## 9 Data Portrayal / Data Transfer format / Physical Model

### 9.1 Conversion process

The CGN1 data is stored into an Oracle database and is converted to GML or to SHAPE formats.

### 9.2 Files

NOT APPLICABLE

### 9.3 Point entities

NOT APPLICABLE

### 9.4 Linear entities

NOT APPLICABLE

### 9.5 Surficial entities

NOT APPLICABLE

## **10 Data Delivery**

### **10.1 Format information**

The available output file formats for the product are: GML (Geography Markup Language) in ASCII and SHAPE (ESRI™). Appendix A presents the name and data type of each attribute in both formats. An example of a dataset in GML (ASCII) format is also presented in Appendix B.

### **10.2 Medium information**

The datasets are available on-line via an FTP site. The customer is informed by e-mail when the process is complete and the file is available for transfer.

### **10.3 Constraints information**

The constraints information for data access and data use are defined in the GeoBase Unrestricted Use Licence Agreement (in the Data section at <http://www.geobase.ca/>).

## **11 Data Capture and Maintenance**

Data is maintained as required. Updates are provided by the Geographical Names Board partners.

**APPENDIX A: Attributes in GML and in SHAPE Formats**

| <b>CGN1<br/>ATTRIBUTE NAME</b> | <b>GML<sup>3</sup><br/>ATTRIBUTE NAME</b> | <b>SHAPE<br/>ATTRIBUTE NAME</b> | <b>SHAPE<br/>DATA TYPE</b> |
|--------------------------------|---|---------------------------------|----------------------------|
| GEONAME                        | geographicName                            | GEONAME                         | char(100)                  |
| CGNDB_KEY                      | cgndbKey                                  | CGNDBKEY                        | char(10)                   |
| GENERIC_TERM                   | genericTerm                               | GENERIC                         | char(240)                  |
| CONCISE_TERM                   | conciseTerm                               | CONCISE                         | char(240)                  |
| LATITUDE                       | latitude                                  | LATITUDE                        | char(25)                   |
| LONGITUDE                      | longitude                                 | LONGITUDE                       | char(25)                   |
| DATUM                          | datum                                     | DATUM                           | char(20)                   |
| NTS_MAP                        | ntsMap                                    | NTSMAP                          | char(255) <sup>4</sup>     |
| REGION_NAME                    | regionName                                | REGIONNAME                      | char(240)                  |
| FEATURE_ID                     | featureId                                 | FEATUREID                       | char(40)                   |

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<sup>3</sup> For GML format data type is always TEXT (STRING).

<sup>4</sup> Field length truncated from 4000 to 255 characters.

## APPENDIX B: Example of CGN1 Dataset in GML Format

```
<?xml version="1.0" encoding="UTF-8"?>
<CGN1:FeatureCollection xmlns:CGN1="http://www.geobase.ca/CGN1"
xmlns:gml="http://www.opengis.net/gml"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.geobase.ca/CGN1_021G13_1134574381010.xsd">
  <gml:boundedBy>
    <gml:Box srsName=""><gml:coordinates>-67.7994631202483,45.2667749245497 -
66.0661228504891,46.3333451902611</gml:coordinates></gml:Box>
  </gml:boundedBy>
  <gml:featureMember>
    <CGN1:PlaceName>
      <CGN1:geographicalName>Aarons Brook</CGN1:geographicalName>
      <CGN1:cgndbKey>DACZW</CGN1:cgndbKey>
      <CGN1:genericTerm>Brook</CGN1:genericTerm>
      <CGN1:conciseTerm>River</CGN1:conciseTerm>
      <CGN1:latitude>45° 55' North</CGN1:latitude>
      <CGN1:longitude>67° 37' West</CGN1:longitude>
      <CGN1:datum>NAD83</CGN1:datum>
      <CGN1:ntsMap>021G13</CGN1:ntsMap>
      <CGN1:regionName>New Brunswick</CGN1:regionName>
      <CGN1:featureId>0c79b8ef849c20c3ac7d837b97a8769c</CGN1:featureId>
      <gml:pointProperty>
        <gml:Point srsName=""><gml:coordinates>-
67.6161580105303,45.9167532109799</gml:coordinates></gml:Point>
      </gml:pointProperty>
    </CGN1:PlaceName>
  </gml:featureMember></CGN1:FeatureCollection>
```